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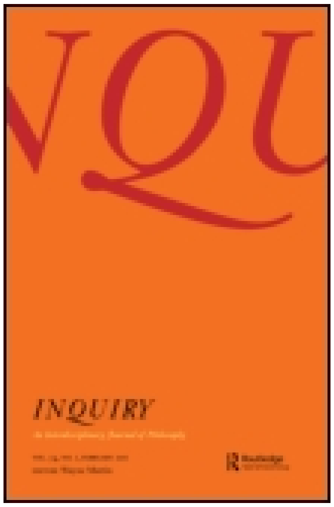

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Logic, art, and understanding in the philosophy of Nelson Goodman

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Logic, Art, and Understanding in the Philosophy of Nelson Goodman[1]

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This paper contains a reconstruction and discussion of some central subjects in Nelson Goodman's philosophical work. Goodman's creative symbol-constructional philosophy concerns fundamental aspects of human cognition and practice. It is argued that this provides us with the intellectual tools for constructing a genuine relationship between logic, knowledge, art, and understanding. This is shown by focusing on subjects ranging from the projectibility of predicates and nominalistic mereology to constructive relativity, ways of worldmaking and a general theory of symbols.

The work of Nelson Goodman covers studies in the areas of logic, theory of knowledge, philosophy of science, philosophy of psychology, general theory of symbols, and aesthetics. In each of these areas Goodman's writings have become important starting-points for further questions and inquiries. Many subjects that are fundamental in contemporary philosophy are connected with the name of Goodman, as for instance the paradox of induction, nominalism, phenomenalistic constructionalism, the general theory of symbols and aesthetic theory as based on different modes of reference. One is already impressed that Goodman writes in such diverse areas. And he does so always with the utmost rigour in argument and in a lucid and elegant Tacitean style. But that his work is of eminent philosophical importance is evident above all in the deep interrelations that exist between the different writings and thus between logic, art, knowledge, and understanding. In what follows, I will try to elucidate some of these connections.

I

Let us start with the relation between experience and theory. In every foundation of empirical knowledge induction plays a prominent role. Thus it was through induction that the natural sciences developed and gained their dominant position. In *Fact, Fiction, and Forecast* (1954) Goodman's penetrating analyses reformulated the problems relating to our use of induction. He focuses our attention not so much on inductive inferences as on what we are doing when we apply the method of induction, and on what is already presupposed when we take induction to be rationally acceptable and successfully applicable: namely a decision as to which predicates are to be considered projectible and which non-projectible. Goodman was the first to see the projectibility of predicates as the core of the problem of induction and to consider its consequences.[2] The results of this move are of an importance that clearly goes beyond the problem of induction in its narrower sense. They concern fundamental aspects of human cognition and practice. The most important of these consequences are the following:

(i) By means of the introduction of logically impeccable predicates Goodman demonstrates that any kind of induction can be carried to contradiction or paralysis. Goodman's famous argument is striking and elegant: One can introduce a predicate (admittedly not very familiar) like 'grue' in such a way that it applies to all things that have been examined before time *T* and are green, but applies to other things that are blue. Consequently, at time *T* the same observational and evidential statements that confirm the statement that emeralds are green, confirm the general hypothesis that all emeralds are grue. The prediction that all emeralds examined after *T* are green, and the prediction that they are grue are both equally well confirmed by the same observations and statements. But if an emerald examined after *T* is grue, then it is, in consequence of the otherwise correctly introduced predicate, blue and not green. Theoretically, both are equally validly confirmed, although they are mutually incompatible, and although we suppose that even after time *T* emeralds will continue to be green.

(ii) The fact that in using induction we already presuppose *decisions* of projectibility shows that induction, after all, has a *pragmatic* and a *practical* core.

(iii) The fact that we obviously do not consider all predicates to be equally projectible can no longer be attributed to a theoretical last resort, and cannot be deduced from a highest and definitive point. Its licence comes from our practice of using predicates, from habit, and from the degree of entrenchment in historically and culturally given practices and standards.

(iv) Since there are *reasons* for deciding between projectibility and non-projectibility, the process cannot be submitted to a formal treatment, to an algorithm or a calculus. Unlike deductive logic, inductive logic is not formal. The form of an inductive inference does not yet tell us anything about its validity.

(v) Thus, there cannot be a *theoretically* certain foundation and warranty of the knowledge and understanding involved. Ultimately, it is our practice that is responsible for our decision.

(vi) At the same time pluralism becomes inevitable. For if what counts as a subject of knowledge and understanding depends on the predication within a symbol system, and if the projectibility of predicates is related to historical and cultural practices, then there is a plurality of equally projectible predicates and thus a plurality of symbol-produced worlds. Furthermore, it becomes obvious that a subject can be interpreted and seen in many different, conflicting and even incompatible ways, and that there are many versions of the world, many world-versions, corresponding to the different symbol systems.

It is easy to understand that not only empiricists, but also foundationalists of knowledge and understanding struggle against such a view. But we have to emphasize that, as far as we can see, none of the proposals made up to the present for a solution of the Goodmanian 'new riddle of induction' works.

Goodman considers the projectibility-character of predicates and labels in a nominalistic, phenomenalistic, and constructionalist way. Especially in *The Structure of Appearance* (1951), *Problems and Projects* (1972), *Languages of Art: An Approach to a Theory of Symbols* (1968), and in *Ways of Worldmaking* (1978), this view has been enlarged into the thesis that what we call our 'world' is not a prefabricated ready-made something waiting to be rendered and represented within our knowledge and actions. Rather, we have to admit that the worlds to which we refer by our actual use of symbols in perceiving, speaking, thinking, and acting are just the worlds made within the functioning of symbol systems.[3]

This has consequences which Goodman's thinking shares with the Kantian critiques. The most important are: (i) that the idea of the given can no longer be maintained; (ii) that a logical gap between our symbol-related 'versions' of the world and our worlds cannot be made intelligible; (iii) that we can thus treat our world-versions as our worlds; (iv) that talking about a world and about existence is meaningful only when seen in its conceptual relativity, i.e. relative to the functions of a symbol system; (v) that in each case there are several symbol systems, notations, and vocabularies, each serving their purposes equally well, not yet 'The One True and Only System' or 'The One True and Complete Description' of the world; (vi) that the choice between different theories and notations is pragmatically determined; (vii) that a dichotomy between perceiving and conceptualizing cannot be made intelligible, because there is no conception-free stratum of sensory data as a sure and innocent starting-point of our knowledge; (viii) that a realistic correspondence theory of truth has to be abandoned; (ix) that cognitive knowledge is not limited to the sciences, but is found to be relevant in other ways of world-understanding or 'worldmaking', for instance, in the arts.

II

These points can already be found in *The Structure of Appearance* (1951), which is, as far as theory of knowledge and philosophy of science are concerned, Goodman's most basic work. With *Structure* he provides the first, and still the only, deployment of nominalism within an entire system of knowledge. He not only announces such a programme, but carries it out in detail. With Carnap's *Der logische Aufbau der Welt* Goodman shares the use of modern logic to develop a theory of knowledge. But his conceptions differ markedly from the tradition of logical positivism, to the extent that he can be considered one of its critics. It is astonishing to see how in studying *Structure* people have not always paid sufficient attention to this aspect. Goodman's *Structure* differs fundamentally in two respects from Carnap's *Aufbau*. Goodman does not subscribe to the foundationalism of *Aufbau*, and whereas Carnap argues on the basis of Russell's theory of types, thus on the basis of set theory, that is of an element–class theory, Goodman relies on a nominalistic system, mereology, that is, a part–whole theory. In the case of *Structure* (and in contrast to Carnap's *Aufbau*) one can also say here that this work turns out, as far as we can see till now, to be free from mistakes.

Among the various subjects of this book two of them, above all, are characteristic of Goodman's way of doing philosophy, and also of all the later writings and theorems: (i) the *constructionalism* regarding the question of constructional systems and definitions, and (ii) the *nominalism*. No one has elaborated both of these subjects with such rigour and in such detail as has Nelson Goodman.

Constructional systems are meant to be interpreted formal systems of definitions and theorems.[4] These systems are not mere formalizations of the realms of our pre-systematic knowledge, but creative theories about these realms. Constructional definitions serve explanatory purposes. The definientia consist of complexes of interpreted terms, the definienda of the ordinary sentences of our natural language.

The validity of a constructional definition depends on the relation between definiens and definiendum, more precisely on whether they have the same range of application, i.e. whether their extensions are the same or not. Two levels must then be distinguished: first, there is the array of constructional systems which endeavour to grasp and to cope with the world of phenomena; and second, there are the metatheoretical requirements on constructional systems. On the first level, Goodman develops his complex phenomenalistic system of qualia (and his graph-theoretical study on the ordering of qualia is an important contribution to the philosophy of psychology).[5] On the second level, the question of a criterion of definitional accuracy is central. Goodman has seen that co-extensiveness of definiens and definiendum alone would be too strong a criterion. For predicates can be construed in such different ways that they can be indistinguishable under the relevant criteria of a theory, but not yet co-extensive, or even disjoint. Against this background and given the well-known difficulties of falling back on *substitution* as the appropriate criterion (e.g. on conceiving points as triples of intersecting lines and ending up with the tautology: each triple of intersecting lines is a triple of intersecting lines), Goodman develops 'extensional isomorphism'[6] as a necessary and sufficient condition that is held as the appropriate criterion for the accuracy of a constructional definition. In extensional isomorphism what is demanded is not the absolute identity of the extensions of definiens and definiendum. And of course, he does not pretend that identity of extension guarantees identity of meaning (which is obviously not the case, consider, e.g. 'unicorn' and 'pegasus', which have different meanings but the same [null] extension). Thus notice that Goodman does not require identity of meaning to be preserved within a definiens-definiendum translation. He requires only that truth-values be preserved. The former is, strictly speaking, not possible. But the latter can be revealing and of great interest. Extensional isomorphism demands only that definiens and definiendum correspond in respect of certain structural relations within the two extensions. Thus, there is the flexibility needed to be able to take care of some sentences and not others. This creative versatility would be blocked if one demanded of a constructional system that it translated *all* the sentences and preserved *all* truth-values.

III

Obviously, constructionalism and nominalism are closely connected. The former demands the latter, and Goodmanian nominalism differs from the traditional variety in having to be seen in the context of constructional systems. Nobody has formulated nominalism in such a penetrating and convincing way, and nobody has stimulated the interest in nominalistic systems as effectively as has Goodman. And what is at stake here is nothing less than platonism. To use an expression of Wolfgang Stegmüller, Goodman can be seen as 'the Ockham's razor of the 20th century'.[7]

For any strict nominalist the world is a world of individuals in contrast to universals. Only the individuals (e.g. houses, chairs, molecules) have reality, whereas the abstract and ideal entities (e.g. genera, classes) assumed in a platonistic view are considered conceptual hypostases. Technically speaking, things are considered to be existent if they must be supposed to be among the variables' range of extension in order to allow us to judge an assertion (in speech and thought) to be true or false. Thus it is not crucial which words and predicates are used, but which sort of variables are admitted and whether their range consists of individuals or of universals. The latter case is acceptable to platonism, the former is nominalism. In *Structure* Goodman developed a calculus of individuals. But beyond this, he emphasizes that the philosophically important question is not that of knowing what exactly an individual is, but what it means to conceive of the world as a world of individuals. Nominalism is fundamentally characteristic of all of Goodman's writings – even where he uses platonizing expressions. The nominalist is ready upon demand to give nominalistic paraphrases.

The nominalistic orientation proves its efficiency in particular areas. So, for instance, a theory of metaphor has to be nominalistic. For if, as is pointed out in *Languages of Art*, the metaphorical use of a symbol consists in transferring its organizing capacity from its native realm to a foreign realm (e.g. the temperature-predicate 'cold' to colours, or using mathematical predicates to describe the physical world), then this cannot be conceived of in a platonistic way. For you can't move classes from one realm to another, and sentences like 'Peter is a lion' cannot be treated as if the attribute is extracted from one thing and injected into another. Rather, one should say that a set of alternative labels is transported. And as to the scope of the constructivist nominalism, it reaches down to the foundation of mathematics, as Goodman together with Quine tried to demonstrate.[8] Given the dissatisfaction of contemporary mathematical realists with the set-theoretical understanding of mathematics, it is of interest to ask whether and how much of mathematics can be conceived in a nominalistic way.

IV

The three main subjects treated and interrelated hitherto (i.e. projectibility, constructionalism, nominalism) already show that Goodman's philosophy (i) argues for a radical conceptual relativity (which, of course, has nothing to do with the view that anything goes), (ii) amounts to a sort of pragmatic 'irrealism', and (iii) advocates the shift from the idea of a 'ready-made world' and of 'The One and Only Truth' to the processes of 'worldmaking' in the plurality of right – but also very often conflicting – versions. Goodman deploys these conceptions above all in *Ways of Worldmaking*.[9] And here again, he does so in a way that shows his intellectual independence of prevailing trends. First of all, it must be noted that the views of this book are the outcome of the context of Goodman's early thinking. But secondly, they concern the problem of realism, thus one of the central debates in contemporary analytical philosophy. But whereas the analytical discussions are finally concerned about finding and characterizing *The One* correct concept of reality, Goodman inquires into the structures, types, and ways of functioning of different symbol systems in philosophy, sciences, arts, perception, and natural language. So, he comes to the conclusion that there is a plurality of worlds produced by different symbolizing functions in different symbol systems, i.e. that there are as many worlds as there are coherent ways of symbolizing. Goodman has isolated and analysed processes which play a role within such worldmaking, such as composition and decomposition, weighting, ordering, deletion, supplementation, and deformation.[10] Of course, worldmaking is not 'creatio ex nihilo'. Rather, it starts with given versions and goes on to others and to new ones. Discovery of new worlds is a re-construction and re-interpretation of old ones. And the validity of a world-version depends on our practice of using symbols and varies with this practice.

This plurality of worlds has to be distinguished sharply from the 'possible worlds' frequently discussed in recent times. In Goodman's view, falling back upon possible worlds cannot count as an answer or solution to the relevant questions at issue. Goodman already holds this position in his early writings on counterfactual conditionals and on disposition-terms and their relationship to the real and the possible.[11] Rather, it is a matter of a plurality of *real* worlds which are produced by the functioning of symbols (of, e.g., words, numbers, pictures, musical sounds) as versions. Only relative to these worlds does talk of irrealism get its explosive and puzzling effect. These positions have to be seen in opposition to the still widespread view that there should be, if it is not yet possible to get 'The One and Non-Conceptualized World', at least 'The One Version or Description'. By means of the relationship between a physicalistic and a phenomenalistic (perceptual) world-version, Goodman demonstrates that among the many and equally valid versions there cannot be 'The One and Privileged Version' to which all the others can be reduced, which would eliminate pluralism.[12] As far as we can see, none of the rejoinders (mostly physicalistic) to this view have been successful. But notice: the result applies equally to both physicalism and phenomenalism, and the plurality of real worlds does not mean that we live in disjoint worlds at the same time.

V

When symbols play the fundamental role sketched above, an inquiry into the different kinds and functions of symbols is what is needed. Goodman has developed a general theory of symbols in *Languages of Art* and has extended some of the problems in *Of Mind and Other Matters* (1984) and (with his co-author Catherine Z. Elgin) in *Reconceptions in Philosophy and Other Arts and Sciences* (1988). It is important to see, first of all, that the whole perspective has been enlarged from an analysis of language to an inquiry into symbol systems that also cover non-verbal symbols, ranging from pictorial representation to musical notation. This is an important step.

Secondly, it is important that all functions of symbols are considered to be cognitively relevant. This means that our possibilities of knowledge and understanding reach far beyond the verbal and cannot be limited to the rational sciences. Thus, it is shown for instance that, and in exactly what sense, cognitive aspects are crucial in the arts, and how with a general theory of symbols we can reformulate the common relationships as well as the differences between the arts and the sciences (and then also how to reformulate the differences between, e.g., painting, music, poetry, and architecture).[13] The connections are closer than assumed. They consist, among others, in the elements involved in worldmaking, for instance decomposition and re-organization, supplementation and deletion, association and dissociation. Both the sciences and the arts can take part in a re-organization of our understanding of world and self. The differences between the two do not consist in the traditional and hackneyed dichotomies (e.g. fact and emotion, conclusion and intuition, truth and beauty). Rather, they consist in a difference in the domination of certain characteristics of symbols. For instance, the former should possess discreteness, differentiation and literal denotation, the latter should possess continuity, non-differentiation, and metaphorical exemplification, i.e. expressivity. Thus, arts and knowledge can no longer be conceived of as a dichotomy or an exclusive opposition. It is a pioneering achievement that the general theory of symbols has deepened the connections between aesthetics and the theory of knowledge beyond a mere analogy into a genuine relationship, and that it has developed what the arts and sciences have in common as well as clarified where they differ.

The symbol theory succeeds in doing so by separating them from, as well as by relating them to, one another, e.g. by distinguishing denotative from non-denotative modes of reference. The former is given for instance in descriptions, depictions, or diagrams. The latter can be found in the expressivity of a musical sound. Besides, one can distinguish between, e.g., fictional, literal, and metaphorical ways of reference. As to a theory of art, this implies that aesthetics has to be deployed within and as symbol theory. *Languages of Art* is now for more than two decades the most important philosophical work on aesthetics. Among the many insights formulated in this book, only a few of those in which new ground has been broken can be pointed out here: the theory of exemplification; the theory of notation; the distinction between analogue and digital symbols; and the 'symptoms' of the aesthetic.

Among the ways of reference, exemplification[14] plays a special role. Let's say a piece of textile possesses certain properties of colour and texture. When, in addition, it refers as symbol to just these properties, then we say that it is a sample of these properties and that it exemplifies them. This feature allows for a symbol-theoretical answer to a series of crucial questions in aesthetics. To mention only two of them: (i) the question of reference in non-representative or abstract objects of art (What kind of reference is relevant in, e.g., Mozart's B-major quartet, no. 589, or in Mondriaan's rectangles of his *Composition* from 1913?); (ii) the question of showing, of expressivity in the arts.

When a symbol (e.g. a ballet movement) *shows* something that cannot be *said*, this means: there is reference in a specific way to those properties or feelings which are concerned and which are literally or metaphorically possessed by the symbol in virtue of its aesthetic features. Here, the symbolization or reference does not run, as it does in denotation, towards the denotatum. It runs in the opposite direction from denotation, i.e. from the denotatum to the predicate or label by which it is denotated, e.g. to the ballet movement of the danseuse. That is the point where, in looking at the ballet movement, you cannot say what you have just seen. And in terms of symbol theory we can conceive of expressivity as a metaphorical showing, as metaphorical exemplification. Within the general theory of symbols the theory of notation[15] has a specific place. Its main purpose is to provide instruments for a characterization, comparative analysis, and classification of symbol systems (e.g. literature, science, music, architecture, painting). Here, the constructional elements become fruitful for the aesthetic. Applying modern logic, Goodman formulates formal requirements that every notational system has to satisfy. In the case of music these are requirements of the score if the score's main function is to be accomplished: that is, to guarantee the identity of a musical work through the history of its performances. The functional and logical requirements for notational systems concern, on the one hand, the relationship between the employed signs among one another, and, on the other, the relationship between these signs and their non-empty ranges of application. Technically speaking the requirements are (i) syntactic disjointness, (ii) finite syntactic differentiation and articulation, (iii) semantic non-ambiguity, (iv) semantic disjointness, and (v) finite semantic differentiation.

In this context, and with regard already to the symptoms of the aesthetic, Goodman emphasizes that symbols can be used and read in an *analogue* or in a *digital* way.[16] A symbol system is analogue if it has syntactic and semantic density, i.e. if it is non-differentiated and continuous (e.g. an ungraduated mercury thermometer, or a glissando in music). Here, any mark and any difference, however minimal, counts within the system and can be decisive. A symbol system is a digital one if it has differentiation, discontinuity and disjunctivity. Here, only certain marks clearly delimited against one another count within the system. What lies between two different marks does not count as a character of the system, e.g. in music, what is between a C sharp and a D flat, or what is between two hours in a stock exchange diagram. Some symbol systems can be read in an analogue as well as in a digital way, e.g. the long hand of a watch. These distinctions are extremely relevant in a philosophy of symbols. They enter into Goodman's five 'symptoms'[17] of the aesthetic (which, of course, are not meant to provide definitions or criteria of the aesthetic): (i) 'syntactic density' (as in an ungraduated thermometer), (ii) 'semantic density' (as in ordinary English, or in the many different words the Eskimos have for snow), (iii) 'relative repleteness' (as in the lineaments of a portrait where every feature of shape, line, etc., counts), (iv) 'exemplification' (as in a musical sound which expresses, for instance, sadness), and (v) 'multiple and complex reference' (as in a performance where a symbol works in several referential capacities). The instruments of this symbol-theoretical aesthetic can fruitfully be applied in order to characterize the particular arts and the relationships between them. A positive reception of this informative approach has not yet come.

VI

Some of these subjects have been further clarified and new subjects developed in the latest book by Goodman and his co-author Catherine Z. Elgin, *Reconceptions*. Among other things, it is demonstrated that some traditionally highly esteemed concepts, such as truth, certainty, and knowledge, have to be modified. Three such re-conceptions are begun.[18] Discursive truth loses its former peak position and has to be construed within the broader concept of 'rightness'.[19] Rightness not only applies to verbal, but also to all non-verbal symbols and to all the different modes of reference, i.e. to all the ways that symbols can function. Within this view 'truth' is not jettisoned but has to be formulated anew. In contrast, 'certainty' has to be abandoned. Instead, Goodman and Elgin argue in favour of the concept of 'adoption'. Adoption means the incorporation of signs, habits, strategies, vocabularies, styles, and statements into our current network and practice of symbol use. And thirdly, a replacement of 'knowledge' by 'understanding' is argued for. The latter is broader in scope than the former. These considerations indicate a direction where further detailed inquiries have to be made. And in this context again, one finds a characteristic feature relevant throughout all of Goodman's writings from the early times up to the analysis of Picasso's *Las Meninas* variations[20] and from his theory of projectibility and mereology to the general theory of symbols: Philosophy may time and again get into difficulties, but none of them can be her end. Just the opposite: a creative symbol-constructional philosophy 'always has plenty to do'.[21]

NOTES

1 Enlarged version of a lecture given at the Technische Universität Berlin on 30 May 1990.

2 Cf. Nelson Goodman, *Fact, Fiction, and Forecast* (Cambridge, Mass.: Harvard University Press, 1954, 1983), pp. 59–124, and: *Problems and Projects* (Indianapolis: Hackett, 1972), pp. 357–70, 389–93, 398–412.

3 Cf. Nelson Goodman, *Ways of Worldmaking* (Indianapolis: Hackett, 1978), pp. 1–22, 91–107, 109–40; *Problems and Projects*, op. cit., pp. 24–32, 155–72; *Languages of Art: An Approach to a Theory of Symbols* (Indianapolis: Hackett, 1968, 1981), pp. 3–10, 34–39, 54 ff., 70–74; *The Structure of Appearance* (Cambridge, Mass.: Harvard University Press, 1951; Dordrecht: Reidel, 1977), pp. 25–30, 43 f., 99–106, 275 f.

4 Cf. *Structure of Appearance*, op. cit., pp. 3–23. This book is based on Goodman's Harvard thesis (1940), now published: *A Study of Qualities* (New York/London: Garland, 1990).

5 Cf. *Structure of Appearance*, op. cit., pp. 97 ff., 135–55, 193–257; and *Problems and Projects*, op. cit., pp. 421–46.

6 Cf. *Structure of Appearance*, op. cit., pp. 10–22.

7 Wolfgang Stegmüller in a letter addressed to the Dean of Faculty 1 of the Technische Universität Berlin, 31 July 1990.

8 Cf. Nelson Goodman/Willard V. O. Quine, 'Steps Toward a Constructive Nominalism' (1947), in *Problems and Projects*, op. cit., pp. 173–98.

9 Cf. *Ways of Worldmaking*, op. cit., pp. x, 17–21, 111–20.

10 Cf. Ibid., pp. 7–17; *Problems and Projects*, op. cit., pp. 394–7.

11 Cf. *Fact, Fiction, and Forecast*, op. cit., pp. 3–27, 34–58.

12 Cf. *Ways of Worldmaking*, op. cit., pp. 1–5, 93–96; cf. Nelson Goodman/Catherine Z. Elgin, *Reconceptions in Philosophy and Other Arts and Sciences* (London: Routledge, 1988), pp. 23–27, 53 f.

13 Cf. *Languages of Art*, op. cit., pp. 225–65; *Problems and Projects*, op. cit., pp. 103–19; *Ways of Worldmaking*, op. cit., pp. 102, 106 f., 139 f.; *Reconceptions*, op. cit., pp. 31–48.

14 Cf. *Languages of Art*, op. cit., pp. 51–65, 91 f.; *Ways of Worldmaking*, op. cit., pp. 12, 18 f., 105 f.; *Of Mind and Other Matters* (Cambridge, Mass.: Harvard University Press, 1984), pp. 59 ff., 82 ff., 92 ff.; *Reconceptions*, op. cit. pp. 19–23, 36–43, 69 ff. Cf. Catherine Z. Elgin, *With Reference To Reference* (Indianapolis: Hackett, 1983), pp. 71–95.

15 Cf. *Languages of Art*, op. cit., pp. 127–73; *Of Mind*, op. cit., pp. 56 f., 85 f.

16 Cf. *Languages of Art*, op. cit., pp. 159–64; *Reconceptions*, op. cit., pp. 126–30.

17 Cf. *Languages of Art*, op. cit., pp. 252–5; the fifth symptom has been added in *Ways of Worldmaking*, op. cit., pp. 67–70; cf. *Of Mind*, op. cit., pp. 135–8.

18 Cf. *Reconceptions*, op. cit., pp. 153–66.

19 Cf. *Ways of Worldmaking*, op. cit., pp. 109–40; *Reconceptions*, op. cit., pp. 11–27, 155–9.

20 Cf. Ibid., pp. 66–82.

21 Ibid., p. 166.

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